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REPORT ON A SURVEY OF PUBLIC HEALTH ADMINISTRATION IN NORTH DAKOTA.¹

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Foreword.

That public health administration in North Dakota is notably deficient, is readily susceptible of proof. Moreover, it is apparent that comparatively little effort has been put forth for the purpose of bettering the conditions. A study of the situation plainly discloses the need for an adequate State health department, the function of which will be to prevent unnecessary sickness and premature death.

General Considerations.

In order that the peculiar public health needs of North Dakota may be better appreciated, it should be recalled that the State is essentially rural in character, the area being 70,196 square miles and the population, according to the census of 1920, 646,872. There are 6 cities having populations in excess of 5,000, the largest being Fargo, with a population of 21,961. Because of the extensive agricultural interests, a large transient population is necessarily attracted to the State in the spring and fall of each year. Moreover, the geographical location of the State is such as to make the winter season long and trying, during which period many of the people are isolated for varying intervals because of snow, cold, and impassable roads. The fact that the homes of many families are frequently difficult of access makes the matter of providing capable public health supervision peculiarly interesting and difficult. In brief, it is important that the people of North Dakota should be so fortified through educational means as to insure intelligent self-reliance during the inevitable periods when outside assistance is difficult to procure.

¹ This article is an abstract of a more comprehensive report submitted to the Surgeon General of the Public Health Service, following a study of the public health administration in North Dakota, which lasted from March to May, 1922. The present discussion includes only the more important phases of the subject, many references to laws, regulations, and statistical evidence being necessarily omitted for lack of space.

Evidences of Inadequate Public Health Provisions.

That North Dakota's public health administration is inadequate has been recognized for many years by students of the State's problems. Thus, upon examining the biennial reports of the State board of health in past years, it will be noted that the city and county health officers earnestly support the secretary in advocating a complete reorganization of the board, together with adequate appropriations, trained personnel, and more effective law enforcement.

In 1915 a comprehensive survey and report on public health administration in North Dakota was made by Surgl. Carroll Fox, of the Public Health Service. While the recommendations made by Doctor Fox were conservative and in keeping with the State's needs, none of them was put into effect. In fact, since the report was rendered, relatively few advances have been made.

How North Dakota's public health activities are viewed by a skilled sanitarian may be gleaned from the rating given the State by Chapin, of Providence, R. I., working under the auspices of the American Medical Association.² At the time of Chapin's survey the State scored 139 of a possible 1,000 points, thereby attaining a rank of thirty-third. Incidentally, it may be mentioned that approximately one-half of the points scored were allotted to the public health laboratories, reducing the standing of the State to forty-third on the basis of work actually performed by the State board of health. It is evident, therefore, that North Dakota does not compare favorably with other States in its provisions for safeguarding the public health.

A further insight into the scope of North Dakota's public health activities may be gained through a comparison of the appropriations for this purpose by the various States. A recently compiled list shows that the annual appropriation of \$3,450 for the State board of health in North Dakota is the smallest amount allotted by any State for public health purposes.

Even more conclusive evidence of the inability of the North Dakota organization to discharge its functions is provided by the absence of records detailing services performed in the State. Except for a few isolated instances, it has been manifestly impossible to render such community aid as may reasonably be expected of a State health department.

THE PRESENT ORGANIZATION.

An understanding of the present organization, of the personnel, of the financial status, and of the governing laws of the North Dakota State board of health is necessary to a better understanding of the existing deficiencies.

² A Report on State Public Health Work, based on a Survey of State Boards of Health. By Charles V. Chapin, M. D., Commissioner of Health, Providence, R. I. Made under the direction of the Council on Health and Public Instruction of the American Medical Association [1914-1915]. (Table 1.—Rating Sheet.)

Composition of State board of health.—The State board of health now consists of three members, one of whom, the attorney general, is ex-officio president of the board. The vice president, "some suitable person, a resident of the State," is appointed by the governor. The superintendent of public health, also appointed by the governor, "shall be learned in medicine, a graduate of some reputable college, licensed to practice in the State, and a resident of the State." The appointees of the governor hold office for two years and until their successors are appointed.

It is conceivable, therefore, that all or part of the membership of the State board of health may change biennially or oftener, manifestly to the detriment of public health endeavor, which demands continued and experienced control. As a matter of fact, changes are frequent and vital records are moved from city to city in which the newly appointed superintendents may happen to live.

Powers and duties of the board.—Upon reading the laws setting forth the powers and duties of the State board of health, one is impressed by the inadequacy and limited scope of the provisions. It is also apparent that no revision of the laws has taken place within recent years. For instance, references to "malarial" diseases among persons and domestic animals still occupy prominent positions.

Appropriation of State board of health.—Without adequate funds it is manifestly impossible to perform efficient public health work. Herein lies the greatest handicap of the North Dakota State Board of Health. As previously indicated, the annual appropriation for the year ending June 30, 1923, is \$3,450, a sum obviously too small to permit of even the most elementary endeavor.

Other health organizations.—The lack of personnel, funds, and adequate organization in the State board of health has resulted in the usurpation of the functions of the board by various uncorrelated organizations, both private and governmental. This has naturally resulted in much confusion and obvious inefficiency. The organizations engaged in public health work, but not under the control of the State board of health, are enumerated in the following list. The various locations of headquarters, indicative of the consequent difficulty of correlating the work, should be noted.

Public health agencies not under the control of the North Dakota State Board of Health.

Agency.	Under control of—	Headquarters.	Appropriations, fiscal year ending June 30, 1923.
Public-health laboratories.....	University of North Dakota.....	Grand Forks.....	\$15,000.00
Venereal-disease control.....	State.....	Bismarck.....	6,274.24
Sanitary inspection of hotels.....	Agricultural College.....	Fargo.....	3,000.00
Antituberculosis association.....	Voluntary organization.....	Bismarck.....	5,000.00
Red Cross public health nursing.....	Red Cross.....	Chicago.....	(?)

Thus it will be seen that at least the sum of \$29,274.24 is probably being spent annually by organizations which have no official connection with the State board of health. The expenditures for Red Cross nurses are borne by the county Red Cross chapters employing such assistants, while the supervisory nurse is paid by the central division of the Red Cross. It is plain that effective public health endeavor can not be expected under the existing conditions.

SUBSIDIARY BOARDS OF HEALTH.

The county board of health is composed of three members: The State's attorney, ex officio president; the county superintendent of schools, ex officio vice president; and a physician, appointed by the county commissioners, who serves as county superintendent of health.

The board of health in a city is composed of the city engineer, a health officer appointed by the mayor, and four aldermen designated by the mayor. In incorporated villages the trustees constitute the local board of health, while in townships the supervisors exercise the powers necessary for the preservation of the public health, under the direction of the county superintendent of health.

The county, city, and local boards of health have broad powers conferred upon them. However, unless provision is made for expert guidance and assistance through State channels, it is conceivable that the best results will not be attained.

HEALTH OFFICERS.

In North Dakota the part-time county health officer system is in vogue. Inasmuch as the State health department is virtually inactive, by reason of inadequate funds and personnel, while the boards of health of villages and townships are required to look for guidance to the county superintendents of health, these county superintendents assume positions of considerable importance.

Few of the county health officers receive salaries sufficient to make public health work attractive. In fact, all of these officials are practicing physicians whose duties ordinarily confine them to or near the locality in which they reside. Consequently, the work is usually directed to the prevention and control of communicable diseases, the attending physicians and telephone serving as important adjuncts in such work.

There are no whole-time health officers in any of the cities of the State. However, in the larger places considerable systematic work is performed in dairy inspection, milk supervision, food inspection, sanitary inspection, school inspection, and social service nursing. Control of city water supplies is maintained in several of the larger

cities, through frequent examinations of samples in the State and branch laboratories. However, with whole-time officials and intelligent State aid, it is conceivable that still better results would accrue to these localities.

THE PUBLIC HEALTH LABORATORIES.

The laboratories constitute the most efficient portion of the fragmentary public health system in North Dakota. The work performed is of broad scope and of especial value to health officers and physicians. During the biennial period ended June 30, 1920, there were five divisions in the public health laboratories, namely, pathology, bacteriology, sanitation, public health education, and sanitary engineering, none of which were authorized by law or regulation of the State board of health. The formation of these units was apparently the natural outcome of a desire to perform certain functions that were not being undertaken elsewhere in the State.

REGISTRATION OF BIRTHS AND DEATHS.

The registration act of the State of North Dakota was passed in 1907 and conforms to the model law for the registration of births and deaths proposed by the United States Census Bureau.

Birth registration.—The number of births registered during the 12-month period ended June 30, 1919, was 10,252, giving a birth rate of 16 per 1,000 population for the entire State (based on the census of 1920). In the following year 12,002 births were registered, giving a birth rate of 18.5 for the entire State. In the calendar year 1918 the rate in the birth registration area of the United States was 24.6 and in 1919 it was 22.3, the lowest since 1915. In 1918 the State of Washington had the lowest birth rate of any State in the registration area, 19.4, and Utah the highest, 33.1. In 1919 California, with 16.8, had the lowest and Utah, with 29.3, had the highest birth rate of the States in the registration area.

It is seen that North Dakota's rates do not compare favorably with the more nearly accurate figures obtained from the census reports. In Burleigh and Emmons Counties the birth rate for the year ended June 30, 1919, is above 30; in Divide, Foster, Grand Forks, Steele, and Grant Counties it is over 25. In many of the remaining counties it is apparent that births are incompletely registered. The work of improving birth registration is one belonging to the divisions of vital statistics and child welfare and public health nursing in particular, though all of the resources of a State department of health can well be guided in the same direction whenever the opportunity affords. Highly essential in improving such registration is a field force which will educate, investigate, and when necessary prosecute.

Death registration.—During the 12-month period ended June 30, 1919, 7,385 deaths were registered with the State registrar. Calculated on the estimated population July 1, 1919, of 643,276, the death rate per 1,000 inhabitants was 11.5 for the entire State. The unusual number of deaths reported during this period was due to the influenza epidemic. During the calendar year 1918 the death rate per 1,000 in the registration area of the United States was 18.1. In the 12-month period ended June 30, 1920, there were 4,557 recorded deaths in North Dakota, giving a death rate of 7 per 1,000 inhabitants (estimated population July 1, 1920—650,458). The death rate per 1,000 in the registration area for the calendar year 1919 was 12.9.

It is entirely probable that North Dakota is a relatively healthy State. It is not conceivable, however, that the death rates are as low as indicated in the returns. It is more likely that there is a marked deficiency in the registration of deaths. Yet it is noted that some improvement, while relatively slight, has taken place since the survey made by Doctor Fox in 1915, when the State death rate was 5.5.

The reasons for this condition of affairs are rather obvious. The population of the State is essentially rural, making it difficult for many families to have the benefit of skilled medical attendance. In numerous instances it is known that burial permits are issued and bodies interred without death certificates being filed. Until the people themselves, as well as all others concerned in the registration of deaths, are educated to the importance of recording births and deaths, genuine progress need not be expected. It is here that a well organized State department of health, through its field agents, may accomplish notable results. Failing in educational efforts, no hesitancy should be displayed in employing police powers.

In this connection a study of the death rates of the counties conveys some interesting information. During the calendar year of 1920, Burleigh County, in which Bismarck is located, had a death rate per 1,000 of 16.9; Cass County, with Fargo, a rate of 12.2; Grand Forks County, with Grand Forks, a rate of 13.1. While these are crude death rates and do not take into account the deaths of nonresidents, they nevertheless give a better indication of conditions as they exist in localities in which registration is more carefully carried out. It is entirely probable, judging from the death rates of North Dakota cities and the death rates of registration States in which efficient organizations obtain, that between 10 and 30 per cent of the deaths which occur in North Dakota are not recorded.

PREVENTION OF DISEASE.

The State board of health has ample legal power to promulgate regulations and perform the work necessary to prevent and control disease in North Dakota. Unfortunately, when this authority was

conferred, the funds necessary to put the machinery into operation and keep it running smoothly were not appropriated. Consequently the State health organization is an impotent body which must depend largely upon the necessarily inadequate efforts put forth by part-time health officers. In view of these facts the board has confined its activities to the doubtful function of promulgating regulations. The wisdom of drawing up regulations when there is no way of enforcing them is very questionable. At best the procedure has only a limited educational value.

While the State board of health has remained quiescent, several agencies, official but not directly associated with the board, have voluntarily engaged in certain commendable epidemiological activities. Thus the laboratories have performed excellent service in this field, and the bureau of venereal diseases and the antituberculosis society have accomplished excellent results in their respective fields.

REPORTING COMMUNICABLE DISEASES.

Requirements relative to the reporting of communicable diseases are covered both by law and regulation. These requirements are in need of revision.

Morbidity reports.—Physicians and other persons are required to report cases of communicable disease to their local health officers. That the rule designating which diseases must be reported was hastily drawn is indicated by the omission of typhoid fever from the list. It will also be noted that membranous croup, a term banned by the Census Bureau, is included. Rare affections, such as actinomycosis, anthrax, and echinococcus are given undue prominence, while various forms of itch, evidently wrongly diagnosed as smallpox, are likewise incorporated in the list. The terms scarlatina and scarlet rash should be abandoned, as their use leads to the belief that they are distinct affections, when, as a matter of fact, they are undoubtedly scarlet fever and should be designated as such.

Transmission of morbidity reports.—County and city health officers are required to submit to the State superintendent of health, before the 10th of the following month, a summary of the communicable diseases reported to them for each month.

It will readily be appreciated that monthly morbidity reports are practically valueless in preventive work. On the other hand, regular weekly reports of numbers of cases of each disease are of great value to State health authorities. With prompt current reporting, measures may be taken to limit the spread of the affections.

A BRIEF STUDY OF COMMUNICABLE DISEASE PREVALENCE IN NORTH DAKOTA.

In order that the inadequacy of communicable disease control in North Dakota may be better appreciated, two tables have been prepared. In the first, Table I, are shown the cases, deaths, death rates, and case-fatality ratios of certain communicable diseases during the calendar years 1918 and 1919. While the death rates are uniformly low, it must be apparent that this is due to incomplete mortality registration rather than excellence of control methods. That this is true is shown by the relatively high case-fatality ratios, particularly in tuberculosis and typhoid fever, indicating also, incomplete morbidity reporting.

The incompleteness of the communicable disease mortality records is further shown in Table II, in which a comparison is made of the death rates from certain diseases in North Dakota and the rates for the registration area for the calendar years 1918 and 1919. It will be noted that the North Dakota rates are uniformly lower than those of the registration area. Furthermore, the North Dakota rates for diphtheria, measles, and tuberculosis are even lower than those of the States having the lowest records. Comparison of other years will reveal similar discrepancies.

TABLE I.—*Number of cases and deaths, death rates per 100,000 population, and case-fatality ratios, from certain communicable diseases in North Dakota for the calendar years 1918 and 1919.*¹

[Population estimates: June 30, 1918, 636,084; June 30, 1919, 643,276.]

Disease.	1918				1919			
	Number of cases.	Number of deaths.	Death rate per 100,000.	Case-fatality ratio.	Number of cases.	Number of deaths.	Death rate per 100,000.	Case-fatality ratio.
Diphtheria.....	391	35	5.5	9.0	394	32	5.0	8.1
Measles.....	615	7	1.1	1.1	552	10	1.6	1.8
Scarlet fever.....	689	19	3.0	2.8	800	28	4.4	3.5
Smallpox.....	345	1	.2	.3	211	0	.....	.....
Tuberculosis (all forms).....	.....	299	47.0	.....	.....	274	42.6	.....
Typhoid fever.....	124	26	4.1	21.0	139	20	3.1	14.4

¹ Figures taken from reports to the United States public Health Service.

TABLE II.—*Comparison of death rates per 100,000 population from certain communicable diseases for North Dakota, the registration area of the United States, and States in the registration area having lowest rates, calendar years 1918 and 1919.*¹

Disease.	1918				1919			
	North Dakota.	Registration area.	Lowest rate.	State having lowest rate.	North Dakota.	Registration area.	Lowest rate.	State having lowest rate.
Diphtheria.....	5.5	13.9	4.2	Oregon.....	5.0	14.7	4.0	Vermont. Utah.
Measles.....	1.1	10.8	3.5	Montana.....	1.6	3.9	.4	Oregon.
Scarlet fever.....	3.0	3.1	.3	Louisiana.....	4.4	2.8	.3	Louisiana.
Smallpox.....	.2	.4	.....	7 States.....	.....	.4	.....	9 States.
Tuberculosis (all forms).....	47.0	150.2	47.8	Utah.....	42.6	125.6	44.8	Utah.
Typhoid fever.....	4.1	12.6	3.7	Minnesota.....	3.1	9.2	2.7	Massachusetts.

¹ Figures for North Dakota taken from reports to the United States Public Health Service; others from Mortality Statistics, Bureau of the Census.

DISCUSSION.

The public health laws and regulations of North Dakota should be rewritten. As they stand at present they are difficult of interpretation in many instances. It is futile to expect a busy physician, serving as health officer, to search the vague and scattered references to health protection for applications to conditions which may arise in an emergency. In their present state the laws and regulations are manifestly a patchwork, resulting from the efforts of frequently changed officials. It may also be pointed out that it was one thing to prepare regulations and quite another matter to insure their enforcement. An adequate central organization, experienced in drafting reasonable yet efficient regulations, is a manifest need. Thereafter, a manual for health officers is needed. Such a manual should contain simple, logical, and elementary statements which will enable any person to act intelligently. Extraneous material should be eliminated from the health officer's manual, except by alphabetically indexed references.

Tuberculosis.—When only 197 cases and 182 deaths from tuberculosis are reported in a State (as in North Dakota in the year ended June 30, 1919), it may be concluded that many additional cases and deaths are not reported. Even Utah's exceptionally low tuberculosis death rate of 47.8 per 100,000 shrinks into insignificance beside North Dakota's rate of 28.4 per 100,000. There is undoubtedly considerable tuberculosis in North Dakota. Fortunately, an efficient voluntary organization, the North Dakota Anti-Tuberculosis Association, has been engaged in combating this scourge for a number of years. While the prevention and control of tuberculosis is logically a State function, nevertheless the association is to be commended highly for stepping into the breach. An efficient State department

of health should take steps to combat tuberculosis just as it combats other affections. In North Dakota it is felt that the voluntary organization, having been first in the field, should be permitted to continue its operations until the State health department is sufficiently developed to undertake its functions. To do otherwise would merely imperil the antituberculosis work now being done.

PUBLIC HEALTH NURSING.

The public health nursing movement in North Dakota is very definitely linked up with the school system. Section 1346 of the statutes is entitled "Health Inspection of Pupils in Public Schools," and emphasizes the principal rôle of the public health nurse in making periodical physical inspections of the school children, assisting in the prevention and control of communicable diseases, and securing medical treatment for abnormal or diseased indigent children.

It is unfortunate that a system of public health nursing should have come into being without adequate provision having been made for supervision of the efforts put forth. Under the present system the work of the nurses is largely directed to the interests of school children, whereas their work should cover a larger field. As the nursing work is nominally under the direction of the school authorities, the State board of health has very little to say concerning the character of the work, the general policy, or the nature of the reports submitted. Needless to say, the activities of the public health nurses, whatever the field in which they are engaged, should be under the direct control and supervision of the division of child welfare and public health nursing of the State health department.

Section 1346 of the statutes, which prescribes the manner in which a school nurse may be obtained, has numerous weaknesses, among which may be cited the provision which permits the employment of licensed or graduate nurses, instead of requiring nurses with special public health training. Moreover, by permitting each county employing a nurse to supply the blanks and necessary supplies, lack of uniformity, with attending confusion, is inevitable.

Recognizing the necessity for fostering the public health nursing movement, and yet realizing the exceedingly slender thread by which it is connected with the State health department, the present secretary of the board and his predecessor entered into agreements with the Red Cross for the purpose of creating a better understanding. By so doing, mutual interests have been preserved and the best possible results under the circumstances accomplished. The Red Cross deserves high commendation for the excellence of its services, and has undoubtedly done the pioneer work necessary to initiating and preserving the public health nursing movement.

DISSEMINATION OF PUBLIC HEALTH INFORMATION.

Owing to the limited appropriation available for the State board of health, popular bulletins have been issued under the auspices of the State laboratory. These booklets, the titles of which are given under the discussion of the laboratory activities, fill a very definite need. It is unfortunate, however, that they could not have been issued by the State board of health, in conjunction with other departments of the board, thereby enhancing their value.

The State board of health publishes a quarterly bulletin of 18 pages. It contains statistical data for the previous three months, together with original or compiled information bearing on the public health. This bulletin will not attract any great amount of attention until the material is improved in quality. An original health cartoon, well-written original articles, fewer quotations from other sources, and better arrangement of the contents will materially improve the publication. In addition, the purely statistical data should be greatly condensed and placed at the end rather than the beginning of the bulletin. The present circulation of the bulletin is 2,500 copies.

The State health officer makes a biennial report to the governor. When funds are available, this report is published. The writer is of the opinion that the publication of the biennial report, as composed in the past, is a waste of public funds. The material that it contains, with the exception of some poorly compiled mortality and morbidity statistics, consists of replies to a questionnaire sent to city and county health officers. The information obtained in this way is of doubtful public health utility. There appears to be no reason why this publication should contain lists of embalmers and physicians. These groups are licensed and the fees obtained may be used for printing such lists should they be found necessary.

The bureau of venereal diseases is distributing the standard publications approved by the Public Health Service for this purpose. In addition, several films have been acquired and are lent to organizations requesting them.

The compilation of the laws of the State and the regulations of the State board of health is a decidedly erratic publication. In its present form it is difficult to locate needed information, even though an index has been provided. A new health officer would experience considerable difficulty in applying the provisions of the law if compelled to gain his knowledge quickly from this compilation. On every hand there is evidence of careless editing, many words being misspelled, erroneous terms being used, and numerous subjects being included which are not germane to the general activities of a State department of health. Among the subjects which should be excluded are the following: Sterilization of defectives and criminals; prepara-

tion of bodies for burial by embalmers; references to embalmer's examinations; and all references to pure foods and drugs, to sale of poisons, drugs, or adulterations, to the importation, sale, and exposure of infected stock, to the manufacture and sale of adulterated cigarettes, to the sale of tobacco to minors, to the sale and smoking of opium, to the manufacture and sale of snuff, and references to adulterated dairy products. These are subjects which do not come within the province of a modern State health department. At the same time, when assistance can be afforded by the department to those having jurisdiction, the cooperation should be free and cordially given.

A codification of the health laws and regulations is urgently needed. Duplications, inaccuracies, and confusing statements should be eliminated, so that a simple working plan may be available. An up-to-date State health department will accomplish this result.

PURE FOOD AND DRUGS ACT.

There is often a desire to place the administration of the pure food and drugs act in a State health department. In fact, many health officials regard work of this character as a legitimate part of their activities. The writer believes that they should not be included in the operations of a State health department, especially since they were not begun in that department, and more particularly because there are numerous important public health functions not now being handled by any organization, which could well be undertaken without further delay. It is recommended, therefore, that no attempt be made to include the administration of the pure food and drugs act among the functions of the State health department.

The Remedy.

There is but one practical way in which to remedy the defects of the present system, and that is to effect a complete reorganization, beginning with the name of the department. Instead of being known as the State board of health, the organization should receive the more dignified and suitable title, "State Department of Health," or "North Dakota State Department of Health". The board should be known as the "Public Health Advisory Council."

ADVISORY COUNCIL.

It is suggested that a public health advisory council, consisting of seven members, be provided for. The State superintendent of public instruction should be an ex-officio member of this council because of the close relationship between the educational and public health nursing systems. The remaining six members should be ap-

pointed by the governor of the State, with overlapping terms, at first for one, two, three, four, five, and six year periods; then for regular six-year terms. Members should serve until their successors are appointed. Vacancies should be filled by appointment for the remainder of the unexpired terms. Two of these five members should be physicians, members of the State medical society, in good standing, and two members, not physicians, should be women.

STATE HEALTH OFFICER.

The State health officer should be selected by the advisory council either from its own membership or elsewhere. He should hold office subject to removal by vote of five members of the board at a regular meeting, and, while in office, should be a member of the board. The State health officer should be a whole-time official, prohibited from the practice of medicine, and especially versed in public health administration through special training and study. The acquisition of a person of this type by the State department of health is absolutely necessary to the upbuilding of an organization which will actually afford health protection. Without the whole-time efforts of such a director the public health activities may be expected to follow a haphazard form.

DIVISION OF VITAL STATISTICS.

The work of the State health department is largely based upon the records and reports received from various official sources. When these records are approximately accurate, the department is enabled to concentrate its efforts in the localities most in need of attention. The work of collecting accurate statistics concerning sickness, deaths, births, marriages, and divorces is one of the most important functions of the health department. Consequently the necessity for the creation of a division charged with this work is ranked next to the acquisition of a board of health and a whole-time health officer. Although the State of North Dakota enacted the standard vital statistics laws as early as 1907, the machinery for putting its provisions into effect have been lacking, thus nullifying to a large degree the purposes it was intended to accomplish. The division of vital statistics should be in charge of a whole-time officer, and sufficient clerical help should be provided to insure prompt compilation and filing of the reports received. North Dakota is one of 15 States which are not included in the registration area. This is an unenviable distinction, because it denotes both lack of interest and an absence of organization for recording vital information.

DIVISION OF PREVENTABLE DISEASES.

Another important cog in State health machinery is a bureau which will direct its energies toward the prevention and control not only of communicable diseases but also of maladies that are, to a considerable degree, preventable. Diphtheria and scarlet fever may be cited as examples of the communicable diseases, while goiter, heart disease, kidney disease, cancer, and hardening of the arteries will serve as illustrations of diseases that are to some degree preventable. It will readily be recognized that efforts directed toward the elimination or reduction of unnecessary sickness and premature death is a work calling for intelligent direction.

The writer does not believe in building up a powerful and expensive central organization capable of sending out assistance whenever the occasion arises. In an essentially rural State such as North Dakota, it is highly important that isolated families, as well as the health officials of towns, villages, and cities be capably instructed in the appropriate means of defense against disease. When an emergency arises, the local authorities will then be in position to cope with the situation rather than look to the central health organization for advice and aid. However, to educate the people in this matter requires an efficient division of preventable diseases in the State health department.

Efforts directed toward combating venereal diseases and tuberculosis should be included in the work of the division of preventable diseases. There is no desire to minimize either the importance of the work performed or the excellence of the organizations engaged in this special work. It is submitted, however, that both activities should be combined with others of a similar character. There are several diseases exacting a greater toll in human life than those for which specific appropriations are being made. If satisfactory results can be obtained in combating two diseases, it seems reasonable to put forth intensive effort against other closely allied affections through a compact organization.

Preventable disease work requires the services of a trained executive, aided by an efficient clerical force and, eventually, by skilled field workers known as epidemiologists. The work is manifestly of a "whole-time type," calling for preliminary training, skill, and energy of high character.

BUREAU OF CHILD HYGIENE AND PUBLIC HEALTH NURSING.

What has been said with regard to the necessity for instructing the people in isolated localities so that they may be able to apply the appropriate remedies when the occasion arises, applies particularly to the care of the mother and the child. Such public health

activities would be supervised by the division of child hygiene, with which the public health nursing could be associated for the time being. The conservation of maternal and child life is an important State function. To disregard this responsibility is to miss one of the greatest opportunities for service to the citizens of the State.

Closely allied with maternal and child hygiene is the public health nursing movement. As previously indicated, the public health nurses who are at present working in North Dakota are only nominally under the control of the State authorities, a condition of affairs that prevents the full utilization of their aid and influence.

That the State should take over the work now being performed by private organizations is entirely obvious. That the correlation of such effort with that being made or about to be made by a State department of health would materially enhance the efficiency of the work, is likewise manifest. Therefore, there would appear to be no logical reason for further delay in placing the public health nurses, as well as the child and maternal welfare work, under the direct charge of a whole-time director.

DIVISION OF SANITARY ENGINEERING.

The need for a specially trained whole-time worker in this field has already been indicated. Such a person could be of constant service in insuring wholesome water supplies, preventing stream pollution, abating nuisances, and seeing that sewage, industrial waste, garbage, and other refuse are disposed of in a manner not prejudicial to the public health. Inasmuch as the work of the hotel inspector is closely allied to the efforts of this division, which has largely to do with sanitation, this work should be transferred to the control of the whole-time director of the division of sanitary engineering. The director of this division, like the director of other divisions, should be a whole-time employee.

Whereas there was but scant legal reference to the subject of sanitary engineering at the time of Dr. Fox's survey in 1915, there is at the time of this report ample provision for the supervision of water supplies and sewerage systems in North Dakota. The State laboratory deserves great credit for taking the initiative in preparing suitable regulations. Likewise it appears that the Public Health Service has stimulated interest in these subjects by lending sanitary engineers for brief periods for the purpose of instituting needed surveys and obtaining necessary information.

In a survey instigated at the request of the Public Health Service it was disclosed that 27 cities in the State discharged untreated sewage into a lake, river, or coulée. In 9 additional cities a preliminary treatment is given with some form of septic tank. But one city in the State has installed a modern sewage-treatment plant. While

some attempt is being made to prevent stream pollution, only one of the larger cities, Minot, is taking definite action. Consequently a problem of considerable proportions confronts the State health authorities, lest the discharge of untreated sewage into streams imperil other communities obtaining water from these sources. The problems of protecting water supplies and disposing of sewage, refuse, and garbage are constant and pressing. Therefore adequate provision should be made for enforcing the regulations which have been adopted.

In considering the problems concerned in providing safe water supplies and supervising waste disposal, it should be recalled that mere regulations are not sufficient to obtain the desired results. Moreover, physicians and laymen can not ordinarily supervise such work with satisfactory results. Sanitary engineering is a profession calling for technical knowledge and training. Therefore, the work should be undertaken by qualified persons only. The State of North Dakota has definite need for one or more persons with these qualifications and should make provision for adequate salary and necessary assistance.

LOCATION OF HEADQUARTERS OF NORTH DAKOTA STATE DEPARTMENT OF HEALTH.

That public health work, like other important State functions, suffers with frequent changes of personnel and location is only too obvious. Under such circumstances efficiency is out of the question. A permanent location for the central office is a prime essential. Bismarck, the capital of the State, is believed to be the logical place for the permanent location of the State department of health, and should be chosen as the headquarters of the department. Bismarck has the advantage of being located near the center of the State, with railroad facilities for reaching other portions of the State within a reasonable time. That there would be certain definite advantages in locating the department either in Grand Forks or Fargo, the two largest cities, is conceded. However, it is important that governmental activities be centralized, and Bismarck is believed to be the most suitable location.

Comment on Proposed State Health Department.

In presenting the plan for a department of health in North Dakota only the bare essentials have been included. By comparison with other State departments of health, North Dakota's proposed organization appears inadequate, even meager. Yet a beginning must be made, the insistent demands of physicians and health officers must be met, and the public health must be preserved as far as it is humanly possible. There are numerous public health activities that have not

been included in the plan presented. For instance, there is definite need for several whole-time health officers who shall constantly be in the field and give assistance to afflicted communities. The acquisition of these field workers may be possible at a later date. What we are concerned with at present is a fundamental organization which can gradually develop and expand to the required strength.

RELATIVE IMPORTANCE OF COMPONENT PARTS OF DEPARTMENT.

An effort has been made to present the needs of the State health department in a logical way, the most important being given first. At the same time it is realized that such an arrangement is largely an arbitrary one and that there may be times when the need for the sanitary engineer, for instance, is even greater than that for the State health officer. However, it is only by following a rational plan that an organization capable of giving service can be built up. The relative importance of the several branches of the State health work, and, consequently, the order in which the several functions should be added to the department, may be stated as follows:

1. An advisory council.
2. A whole-time State health officer.
3. A division of vital statistics, headed by a whole-time director and supplied with adequate clerical assistance.
4. A division of preventable diseases, headed by a whole-time director and supplied with adequate clerical assistance.
5. A division of child hygiene and public-health nursing, headed by a whole-time director or directress, assisted by one field advisory nurse and supplied with adequate clerical assistance.
6. A division of sanitary engineering, headed by a whole-time sanitary engineer and supplied with adequate clerical assistance.

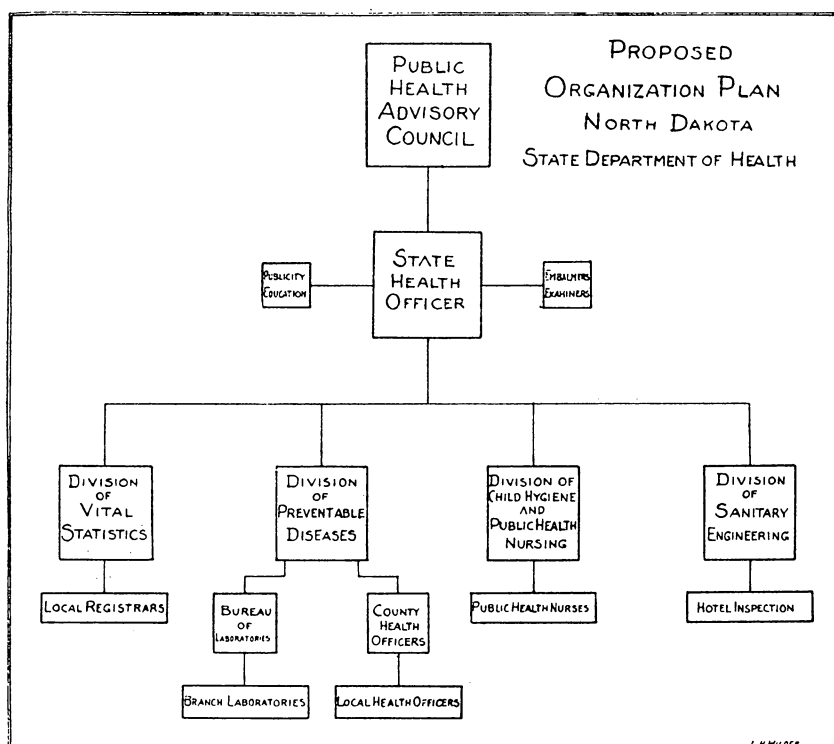
A GRAPHIC REPRESENTATION OF THE PROPOSED STATE HEALTH ORGANIZATION.

In the accompanying diagram the relation between the various factors in the organization are indicated. The governing body, or advisory council, occupies a prominent position. Through this body the State health officer will function. Health publicity and education must naturally be supervised by the State health officer. On the other hand, he retains his position as secretary of the embalmer's examining board.

Furthermore, the State health officer will supervise the work of the four divisions of the department. Local registrars submit their reports and correspondence to the division of vital statistics. Directly connected with the division of preventable diseases are the main

laboratory and three branch laboratories, and all city, county, and local health officers. The public health nurses look to the division of child hygiene and public health nursing for supervision and guidance. The hotel inspector is definitely linked up with the division of sanitary engineering, which supervises water supplies, sewage disposal, garbage and waste disposal, and other matters pertaining to general sanitation.

No attempt has been made to include in this plan the highly desirable district health officers or other essential features. North Dakota



needs a simple yet efficient State health organization. This plan is presented in the hope that these requirements will be met.

CONSIDERATION OF THE PUBLIC HEALTH BUDGET.

It is estimated that a creditable State health department could be established in North Dakota at an annual cost of \$32,500. On the basis of the present total State appropriation of \$4,158,528.04 the amount requested is approximately only 0.78 per cent of the total State appropriation. Competent public health authorities assert that a State health budget amounting to 2 per cent of the total ap-

propriation is within the limits of efficient administration. Therefore, the suggested expenditure of \$32,500 for health purposes may be considered very reasonable. The per capita cost of such a State department of health would be approximately \$0.05.

Under this arrangement it is proposed that the diagnostic laboratories remain, as heretofore, under the supervision of the University of North Dakota, yet nominally connected with the State department of health. The funds necessary for the operation of the laboratories would be included in the University's budget.

The hotel inspector, being paid from the fees collected, has not been included in the estimates. However, this inspector should be carried as an employee of the division of sanitary engineering, in which section matters concerning sanitation logically belong.

ITEMIZED ESTIMATE OF COSTS OF PROPOSED STATE DEPARTMENT OF HEALTH IN NORTH DAKOTA.

While it is not possible to prepare a budget that will absolutely meet all requirements, yet an estimate of costs has been prepared with a view of indicating the approximate expenditures for various purposes.

Purpose of expenditure.	Amount.
Per diems, members of advisory council.....	\$300
Traveling expenses of council members.....	500
Salaries:	
State health officer.....	5,000
Chief, division of vital statistics.....	2,400
Chief, division of preventable diseases.....	3,500
Chief, division of child hygiene and public health nursing.....	3,000
Advisory nurse, division of public health nursing.....	2,000
Chief, division of sanitary engineering.....	3,000
Clerical force.....	4,500
Traveling expenses.....	4,500
Printing.....	2,000
Stationery and office supplies.....	1,000
Postage.....	500
Telephone and telegraph service.....	200
Express, freight, drayage, etc.....	100
Estimated total.....	32,500

(NOTE.—An estimate for the rent of quarters has not been included. It is proposed that the State provide suitable quarters, either in the capitol in Bismarck or in a suitable building in the same city.)

ORDINANCES FOR PROTECTION OF FOOD UPHELD.

Certain sections of the code of the city of Birmingham, Ala., prohibited the sale of contaminated or adulterated food, required that food places should be screened to prevent the entrance of flies, and also required that food offered for sale should be kept indoors.